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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,252	02/24/2005	Holger Luthje	SPM-381-A	8748
7590		05/08/2007		
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			EXAMINER	
			DAVIS, OCTAVIA L	
			ART UNIT	PAPER NUMBER
			2855	
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			05/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

TH

Office Action Summary

Application No.

10/511,252

Applicant(s)

LUTHJE ET AL.

Examiner

Octavia Davis

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/13/07.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-18 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 4, 5, 7 – 11 and 13 – 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallace et al (5,769,581) in view of Hesthamar et al (5,343,759).

Regarding claims 1 and 4, Wallace et al disclose direct tension indicating washers comprising force application elements 50, 52 (See Col. 3, lines 62 – 66), a direct tension indicator(s) 30, 60 (See Col. 4, lines 18 – 20) including an indicating material layer 64 having flat protruberances 12 and indentations 16 (See Col. 3, lines 25 – 28), wherein the indicating material layer or force sensory effect layer 64 changes its resistance as a result of an applied force (See Col. 5, lines 12 – 13 and 22 – 34) but does not disclose that the force sensory layer changes its electrical resistance due to changes of an applied force and comprises diamond-like carbon layers including an amorphous or nanocrystalline structure and providing an electric circuit. However, Hesthamar et al disclose a sensor system comprising a sensor 2 in the form of a washer (See Col. 3, line 60) that includes a magnetoelastic layer 7 made from a wide amorphous ribbon through etching (See Col. 3, lines 66 – 68) and that undergoes a change in its electrical resistance due to an applied force (See Col. 4, lines 14 – 19, See Fig. 4) and a circuit provided to output signals and including signal transmission means (See Col. 5, lines 8 – 15 and 28 – 35, See Fig. 5).

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Wallace et al and according to the teachings of Hesthamar et al for the purpose of, providing a sensor system which is fast, easy to handle, reliable, highly sensitive to strains and stresses in an object and that is insensitive to stray fields and temperature (See Hesthamar et al, Col. 2, lines 14 – 19).

Regarding claim 5, in Wallace et al, the indicator 30 includes an upper side 14 and a lower side 18 (See Col. 3, lines 25 – 28), the side 18 includes the material layer 64 (See Col. 4, lines 57 – 67).

Regarding claim 7, in Wallace et al, the indicator 30 is shaped in the form of a disk and includes an opening formed therein (See Col. 3, lines 28 – 29).

Regarding claims 8 – 12, in Wallace et al, the protruberances 12 are separately located on a surface of the indicator 30 and have a rounded shaped (See Col. 5, lines 27 – 36, See Fig. 5).

Regarding claim 13, in Wallace et al, the indicator 30 is located in a recess 44 (See Col. 3, lines 46 – 48, See Fig. 6).

Regarding claims 14 – 16, in Wallace et al, the indicator 30 has an opening that includes a coating (See Col. 3, lines 29 – 30, 52 – 61 and Col. 5, lines 9 – 14).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 6 and 12 are rejected under 103(a) as being unpatentable over Wallace et al in view of Hesthamar et al (5,343,759), as applied to claims 1 – 5, 7 – 11 and 13 – 18 above, and further in view of Walton (5,291,789).

Regarding claims 6 and 12, Wallace et al and Hesthamar et al disclose all of the limitations of these claims except for an electrically insulating layer and the prominence areas being electrically separated. However, Walton discloses a load indicating device comprising electrically conductive contact elements 24, 25 that are electrically insulated from the main body of a fastener and that include insulating sleeves that engage a head 23 and nut force application assembly (See Col. 4, lines 20 – 28) and an electric circuit is provided (See Col. 4, lines 36 – 40 and 46 – 51).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Wallace et al and Hesthamar et al according to the teachings of Walton for the purpose of, advantageously providing a method to indicate the load to which a member is subjected that includes an indicating means which gives an electrical signal when the stress to the main body of the fastener exceeds a predetermined value (See Walton, Col. 2, lines 24 – 32).

Allowable Subject Matter

5. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The primary reasons for indicating allowable subject matter is that there cannot be ascertained prior art that anticipates or makes obvious the provisions of a "diamond-like carbon based layer".

Response to Arguments

6. Applicant's arguments with respect to these claims have been considered but are moot in view of the new grounds of rejection.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Luthje et al ((7,073,390) disclose a sensor for determining the state of parameters on mechanical components while using amorphous carbon layers having piezoresistive properties.

Ceney et al (5,584,627) disclose load indicating fasteners.

Engler et al (6,810,747) disclose a test device for determining the friction and prestress values of screwed connections.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Octavia Davis whose telephone number is 571-272-2176. The examiner can normally be reached on Mon through Thurs from 9 to 5. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz, can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

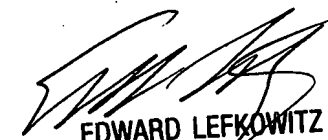
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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



OD/2855

4/23/07



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